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A Model of LoRaWAN Communication in Class A for Design Automation of Wireless Sensor Networks Based on the IoT Paradigm

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Abstract

© 2018 IEEE. Wireless sensor networks (WSN) organized according to the IoT paradigm become more and more claimed in different sectors of economy. Power consumption and time of autonomous operating for wireless sensors are the key factors at designing reliable and sustainable systems. Mathematical models describing different physical and behavior aspects of the WSN play important role at the design automation. The important characteristics for several low-power communication standards and technologies are considered and compared. The features of wireless communication standards such as BLE, ZigBee, SIGFOX and LoRaWAN used for WSN implementation are demonstrated. The model describing the LoRaWAncommunication between end-devices and the network server in the Class A which can be used for the design automation purpose to select the effective architecture of the WSN and lifetime evaluation for the sensors is proposed.

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Keywords

design automation, Internet of Things (IoT), LoRa WAN, low-power wireless technologies, wireless sensor networks (WSN)

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